

Claims

1. An article comprising a polymer composition comprising
 - (A) a polyolefin matrix, and
 - (B) a nanofiller dispersed in component (A),which composition has been stretched in at least one direction.
2. Article according to claim 1, wherein the article is a film.
3. Article according to claim 1 or claim 2, wherein the oxygen transfer rate is less than $1800 \text{ cm}^3/\text{m}^2/24\text{h}$, $25\mu\text{m}$.
4. Article according to any one of the claims 1 to 3, wherein the moisture transfer rate is less than $6\text{g}/\text{m}^2/24\text{h}$, $25\mu\text{m}$.
5. Article according to any of the preceding claims, wherein the polymer composition has been biaxially stretched.
6. Article according to any of the preceding claims, wherein component (B) of the polymer composition is a clay-based layered inorganic material, preferably a layered silicate.
7. Article according to any of the preceding claims, wherein component (B) is present in the polymer composition in an amount of 1 to 20 wt.% based on the total weight of the polymer composition.
8. Article according to any of the preceding claims, wherein component (A) of the polymer composition is a polypropylene, preferably a propylene homopolymer.

9. Article according to any of the preceding claims, wherein the polymer composition further comprises
(C) a compatibilizer.
10. Article according to claim 9, wherein component (C) is a polymer comprising polar groups.
11. Article according to claims 9 or 10, wherein component (C) is present in the polymer composition in an amount of 1 to 10 wt.% based on the total weight of the polymer composition.
12. Article according to any of the preceding claims, wherein the polymer composition has been stretched with a stretch ratio from 1.1 to 20.
13. Article according to claim 12, wherein the stretch ratio is 2 to 15.
14. Article according to any of the preceding claims, wherein the polymer composition has been stretched at a stretching speed of 30 to 1000 m/min.
15. A process for the production of an article comprising producing a polymer composition by dispersing a nanofiller in a polyolefin matrix and stretching the polymer composition in at least one direction.
16. Process according to claim 15, wherein the polymer composition is produced by melt compounding of the polyolefin matrix with the nanofiller.
17. Process according to claim 15 or 16, wherein the machine direction stretching ratio is 3 to 7.
18. Process according to claim 17, wherein the stretching temperature is 110 – 140°C

19. Process according to any one of claims 15 to 18, wherein the transverse direction stretching ratio is 6 to 10.
20. Process according to claim 19, wherein the stretching temperature is 150 – 190°C.
21. Use of an article, according to any of claims 1 to 14 or produced according to any of claims 15 to 20 for food packaging.